

Serial No.: 10/765,708
Examiner: Loren C. Edwards
Title: EXHAUST ASSEMBLY
Page 8 of 12

REMARKS

Reconsideration is requested in view of the above amendments and the following remarks. Claims 1, 6, 11 and 17 have been amended. New claims 27 and 28 have been added. Support for the amendments and new claims can be found in the original disclosure, e.g., page 5, lines 19-22 of the specification and Figs. 4, 5, 7 and 8, among other places. No new matter has been added. Claims 1, 3, 4, 6-8, 10-15 and 17-28 remain pending in the application.

Claim Rejections - 35 USC § 102

Claims 1, 4, 11-14, 20-23, 25 and 26 are rejected under 35 USC § 102(b) as being anticipated by Vaughn (US 3,111,190). Applicants respectfully traverse this rejection to the extent it is maintained.

Claim 1 requires two or more distinct rings each having a generally circular inner surface that has a substantially uniform inner diameter which defines an unobstructed opening therethrough. Claim 1 also requires that each ring be defined by two spaced apart radially inwardly projecting walls having surfaces positioned substantially perpendicular to a flow of a cooling water and exhaust gases, wherein the radially inwardly projecting walls constrict a passageway which causes mixing of the cooling water with the exhaust gases to reduce noise generated by the combustion engine.

Vaughn fails to disclose such an arrangement as required by claim 1. On the contrary, Vaughn discusses a plurality of rings 3, 4, 5, 6, 7, each of which carries a plurality of vertically spaced vanes 10 (see Vaughn, Figs. 1-3) for deflecting cooling water and exhaust gas in a direction indicated by arrows in Fig. 1. That is, the vertically spaced vanes 10 in fact obstruct the opening of each of the rings 3, 4, 5, 6, 7 and are essential structures for the Vaughn muffler to work, e.g., deflecting cooling water and exhaust gas. This is completely distinct from the invention of claim 1, which requires two or more distinct rings, each of which has an inner diameter which defines an unobstructed opening therethrough, where the opening is unobstructed. For at least the reason above, claim 1 is patentable over Vaughn. Claims 4, 20-23 and 25 depend ultimately from claim 1 and are patentable along with claim 1 and need not be separately

Serial No.: 10/765,708
Examiner: Loren C. Edwards
Title: EXHAUST ASSEMBLY
Page 9 of 12

distinguished at this time. Applicants are not conceding the relevance of the rejection to the remaining features required by claims 1, 4, 20-23 and 25.

Claims 11-14 and 26, which include similar limitations concerning at least two distinct rings, each of which has an inner diameter which defines an unobstructed opening therethrough, are patentable for the reason discussed with regard to claim 1, 4, 20-23 and 25. Moreover, claim 11 requires each of the rings to have an inner diameter sized to be at least 25% smaller than the inner diameter of a rigid tubular member to provide additional constriction of an exhaust gas passageway. The present record fails to disclose this arrangement. For at least these reasons, claim 11 is patentable over Vaughn. Claims 12-14 and 26 depend from claim 11 and are patentable along with claim 11 and need not be separately distinguished at this time. Applicants are not conceding the relevance of the rejection to the remaining features required by claims 11-14 and 26.

For at least the foregoing, claims 1, 4, 11-14, 20-23, 25 and 26 are distinguishable from and allowable over Vaughn. Favorable reconsideration and withdrawal of the rejection are respectfully requested.

Claim Rejections – 35 USC § 103

Claims 3, 6-8, 10, 17-19 and 24 are rejected under 35 USC 103(a) as being unpatentable over Vaughn in view of Jorg Alexnat et al. (US 6,058,702) as stated in paragraph 17 of the Office Action. Applicants respectfully traverse this rejection.

Claims 3 and 19 depend ultimately from claim 1 and are patentable over Vaughn in view of Jorg Alexnat et al. for at least the same reasons discussed above regarding claims 1, 4, 20-23 and 25. Jorg Alexnat et al. do not remedy the deficiencies of Vaughn because the vertically spaced vanes 10 in Vaughn that obstruct the opening of each of the rings 3, 4, 5, 6, 7 appear to be essential structures for the Vaughn muffler to work, e.g., deflecting cooling water and exhaust gas. Applicants are not conceding the relevance of the rejection to the remaining features of claims 3 and 19.

Serial No.: 10/765,708
Examiner: Loren C. Edwards
Title: EXHAUST ASSEMBLY
Page 10 of 12

Claims 6-8 and 10 are patentable over Vaughn in view of Jorg Alexnat et al. for reasons similar to those discussed above regarding claims 1, 4, 20-23 and 25. Claim 6 requires two or more distinct rings, each of which has a generally circular inner surface, which has a substantially uniform inner diameter that defines an unobstructed opening therethrough. Claim 6 further requires that each of the rings be defined by two spaced apart radially inwardly projecting walls that have surfaces positioned substantially perpendicular to a flow of cooling water and exhaust gases, wherein the radially inwardly projecting walls constrict a passageway which causes mixing of cooling water with exhaust gases to reduce noise generated by the combustion engine. Claim 6 further requires each of the rings to have an inner diameter sized to be at least 25% smaller than the inner diameter of the flexible exhaust tubular member to provide additional constriction of the exhaust gas passageway.

The present rings located on the inner diameter of the tubular member help form water droplets from the raw water that flows into the tubular member. In one example, the rings themselves, rather than any additional structure inside the rings, constrict the water and interfere with the flow of the water. The water then builds up and spills over the walls of the rings, creating turbulence in the flowing water resulting in a substantial amount of water droplets. The constriction provided by the rings also increases the velocity of the exhaust gas to more effectively pick up drops of water from the bottom of the turbulent member and mix the water with the gas. These water droplets from the flowing water are mixed with gas, and the noise generated by the combustion engine is reduced. The present rings advantageously provide a simple structure for effectively dampening sounds of the engine exhaust and thus significantly reduce the cost for manufacturing the exhaust apparatus (see, for example, page 4, lines 12-23 and page 5, line 27 to page 6, line 9 of the present specification, among other places).

Vaughn fails to teach or suggest such arrangements as required by claim 6. On the contrary, Vaughn discusses a plurality of rings 3, 4, 5, 6, 7, each of which carries a plurality of vertically spaced vanes 10 (see Vaughn, Figs. 1-3) for deflecting cooling water and exhaust gas in a direction indicated by arrows in Fig. 1. That is, the vertically spaced vanes 10 in fact obstruct the opening of each ring, and are essential for the

Serial No.: 10/765,708
Examiner: Loren C. Edwards
Title: EXHAUST ASSEMBLY
Page 11 of 12

Vaughn muffler to work, e.g., deflecting cooling water and exhaust gas. This is completely distinct from the invention of claim 6. Moreover, nowhere does Vaughn discuss a flexible exhaust tubular member required by claim 6 (see Vaughn, col. 1, lines 24-30). In fact, the Vaughn exhaust pipe 1 appears to include two rigid, longitudinally extending rods 8 and 9 (see Vaughn, col. 1, lines 31-35 and Figs. 1-3) and thus would not be flexible.

For at least these reasons, claim 6 is patentable over Vaughn in view of Jorg Alexnat et al. Alexnat et al. do not remedy the deficiencies of Vaughn because the vertically spaced vanes 10 in Vaughn that obstruct the opening of each of the rings 3, 4, 5, 6, 7 appear to be essential structures for the Vaughn muffler to work, e.g., deflecting cooling water and exhaust gas. Claims 7-8 and 10 depend ultimately from claim 6 and are patentable along with claim 6 and need not be separately distinguished at this time. Applicants are not conceding the relevance of the rejection to the remaining features required by claims 6-8 and 10.

Claims 17-18 and 24, which include similar limitations concerning two or more rings, each of which has an inner diameter defining an unobstructed opening therethrough, are patentable for the reason as discussed with regard to claim 1, 4, 20-23 and 25.

For at least the foregoing, claims 3, 6-8, 10, 17-19 and 24 are distinguishable from and allowable over Vaughn in view of Jorg Alexnat et al. Favorable reconsideration and withdrawal of the rejection are respectfully requested.

Claim 15 is rejected under 35 USC 103(a) as being unpatentable over Vaughn in view of design choice. Applicants respectfully traverse this rejection. Claim 15 depends from claim 11 and is patentable over Vaughn for at least the same reasons discussed above regarding claims 11-14 and 26. Applicants are not conceding the relevance of the rejection to the remaining features of claim 15.

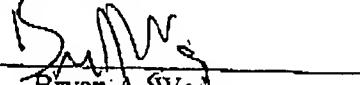
Serial No.: 10/765,708
Examiner: Loren C. Edwards
Title: EXHAUST ASSEMBLY
Page 12 of 12

In view of the above, favorable reconsideration in the form of a notice of allowance is respectfully requested. Any questions regarding this communication can be directed to Applicants' representative listed below.



Respectfully submitted,

HAMRE, SCHUMANN, MUELLER &
LARSON, P.C.
P.O. Box 2902-0902
Minneapolis, MN 55402-0902
(612) 435-3800

By: 

Bryan A. Wong
Reg. No. 50,836

Dated: December 22, 2008

MDS:BAW:cy